

WHAT IS CLAIMED IS:

1. A method for operating a data processing system to generate a second image from a first image, said first image comprising a two dimensional array of pixel values, each of said pixel values corresponding to the light intensity in one of a plurality of spectral bands at a location in said first image, said method comprising the steps of:

separating said pixels of said first image into a plurality of input image planes, each input image plane having an identical number of pixels within a normalized horizontal and vertical sampling interval as the other input image planes, and all pixels in a given input image plane having the same spectral band as the other pixels in that input image plane;

representing said first image as a set of super input pixels, each of said super input pixels being a vector of dimension P , where P is the number of said input image planes, each component of that vector being an input pixel from a corresponding input image plane;

defining a set of output image planes, each pixel in a given output image plane representing the intensity of said second image in one of a plurality of spectral bands at a corresponding point in said second image;

representing said second image as a set of super output pixels, each super output pixel being a vector of dimension Q , where Q is the number of said output

image planes, each component of that vector being a pixel from a corresponding output image plane; and

applying a linear transformation to a vector derived from said super input
5 pixels to obtain a vector comprising at least one of said super output pixels.

2. The method of Claim 1 wherein said first image is generated by an optical device having a lens system for imaging a scene onto an array of photosensitive detectors, and wherein said linear transformation depends on a property of said lens
10 system.

3. The method of Claim 2 wherein said property is the focal length of said lens system.

4. The method of Claim 2 wherein said property is the f-number of said lens system.

5. The method of Claim 1 wherein said linear transformation depends on the source of illumination used to generate said first image.

6. The method of Claim 1 wherein said linear transformation depends on the type of scene captured in said first image.

7. The method of Claim 1 wherein said linear transformation depends on the output format of said second image.

ADD 9.4

ADD 5.1

3. The method of Claim 2 wherein said property is the focal length of said lens system.